

REMARKS/ARGUMENTS

Claims 26-28, 31, 36, 38-48, 63-65 remain in this application. Claims 36, 38 and 41-43 have been amended. Claims 16-20, 22-23, 32-34, 37, 49-60, and 66-68 have been canceled. Claims 1-15, 21, 24-25, 29-30, 35, 61-62 have been withdrawn as a result of an earlier restriction requirement. In view of the examiner's earlier restriction requirement, applicant retains the right to present claims 1-15, 21, 24-25, 29-30, 35, and 61-62 in a divisional application.

Claim 54 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner's rejection of claim 54 is made moot in light of Applicants' amendment. Specifically, claim 54 has been cancelled.

Claims 16, 19-20, 22-23, 55-60, 66-68 are rejected under 35 USC 102(b) as being anticipated by Aktins.

The Examiner's rejection of claims 16, 19-20, 22-23, 55-60, and 66-68 are made moot in light of Applicants' amendment. Specifically, claims 16, 19-20, 22-23, 55-60, and 66-68 have been cancelled.

Claims 32-33 are rejected under 35 USC 102(b) as being anticipated by Fleming.

The Examiner's rejection of claims 32-33 are made moot in light of Applicants' amendment. Specifically, claims 32-33 have been cancelled.

Claims 17-18 are rejected under 35 USC 103(a) as being unpatentable over Aktins.

The Examiner's rejection of claims 17-18 are made moot in light of Applicants' amendment. Specifically, claims 17-18 have been cancelled.

Claims 26-28, 31 are rejected under 35 USC 103(a) as being unpatentable over Aktins as applied to claim 16 above, and further in view of Hicks.

With regard to claim 26, the Examiner contends that it would have been "obvious to alter Atkins by doping the soot body with fluorine, for the advantages of Atkins [Hicks]." Applicants respectfully disagree.

Atkins discloses a method of manufacturing a germanosilicate optical fiber having an increased ratio of GeO to GeO₂ for the purpose of increasing the photorefractive effect of the fiber (See column 2, lines 10-17). Atkins further suggests that an increase in the photorefractive effect in such an optical fiber makes possible the manufacture of efficient Bragg gratings (column 2, lines 49-53). To accomplish this task Atkins discloses manufacturing the optical fiber in a conventional manner, with the exception that such manufacturing occurs in an atmosphere which is essentially oxygen free (see column 2 lines 65-67, column 3 lines 10-17, column 4, lines 31-32, lines 37-43, and lines 65-67, and column 5, lines 3-5).

On the other hand, Hicks discloses a method of manufacturing an optical fiber having a core of pure silica doped with fluorine, and a cladding of pure silica doped with an amount of fluorine greater than the amount of fluorine in the core. (see column 3, lines 48-60).

The Examiner offers the argument that it would have been obvious to modify Atkins according to Hicks by doping the glass with fluorine to substantially reduce hydroxyl content and to lower viscosity, thereby arriving at Applicants' invention. However, Atkins already discloses the option of using Cl₂ to dehydrate the preform, a process which is well known and effective for that purpose. To follow the Examiner's assertion to its logical conclusion, all optical fibers should therefore be doped with fluorine. There is no suggestion that fluorine should be substituted for chlorine, let alone a suggestion for doping the glass with fluorine prior to exposing the fluorine doped glass to carbon monoxide. Fluorine is a down-dopant which is commonly used to decrease the refractive index of silica glass. The use of fluorine in Atkins, rather than being advantageous for the reasons cited by the Examiner, may in fact render the invention of Atkins inoperable by modifying the refractive index of the core and/or cladding glass. This is especially true in light of Applicants' disclosure, page 14, paragraph 63, pointing out that doping silica glass with fluorine results in the formation of excess oxygen, which Atkins seeks to eliminate, not create. In other words, would one of ordinary skill in the art who set out to solve the problem of eliminating absorption peaks due to fluorine, be reasonably expected to combine the cited references? Applicants assert that the answer is no. Rather, the Examiner has employed hindsight, using Applicants' invention as a blueprint to piece together disparate references. Applicants therefore believe that claim 26 is patentable over the prior art, and that claims 27, 28, and 31, which depend from claim 26, are also patentable.

Claim 36-37, 40-41, 63-65 are rejected under 35 USC 103(a) as being unpatentable over Fleming as applied to claim 32 above, and further in view of Berkey.

As to claims 36 and 37, the Examiner argues that Fleming's treatment is prior to sintering, and that halide exposure is terminated when consolidation begins, pointing to a passage from Example 1 (column 9, line 26). Applicants respectfully traverse the rejection. Since the atmosphere of Example 1 (or any other example disclosed in Fleming) does not contain carbon monoxide, as expressed by Applicants' claims, Applicants fail to see the relevance of the Examiner's observation. That is, the body of Example 1 (consisting of the porous tube and silica core rod) is variously exposed to an oxygen atmosphere, an atmosphere consisting of 84% He, 10% O₂, and 6% Cl₂, an atmosphere consisting of 94% He and 6% Cl₂, an atmosphere consisting of 90% He and 10% O₂, and finally an atmosphere consisting of 100% He. At no point was the body exposed to an atmosphere comprising carbon monoxide. Indeed, Fleming makes clear that the heat treatment comprising carbon monoxide is to be preformed in the presence of a halogen. See, for example, column 7 lines 34-37 and lines 42-45.

The Examiner further cites Atkins against claim 37. However, neither Atkins nor Fleming discloses a step of exposing a soot preform to a halogen-free atmosphere containing carbon monoxide and a step of doping the soot preform with fluorine in the presence of carbon monoxide, nor, for the reasons given above, is there a motivation or suggestion to combine Fleming and Atkins. To modify Atkins to include fluorine, as disclosed in Fleming, invites the problem with the generation of excess oxygen previously discussed, counter to the teaching of Atkins. To modify Fleming to eliminate the halogen and carbon monoxide combination (i.e. carbon monoxide alone) is contrary to the teaching of Fleming. Applicants believe amended claim 36 overcomes the Examiner's 103(a) rejection and is therefore patentable over the prior art.

Claims 32-34 are rejected under 35 USC 103(a) as being unpatentable over Atkins in view of Fleming.

The Examiner's rejection of claims 32-34 are made moot in light of Applicants' amendment. Specifically, claims 32-34 have been cancelled.

Claims 37-39 and 42-53 are rejected under 35 USC 103(a) as being unpatentable over Fleming and Berkey as applied to claim 36 above, and further in view of Atkins.

With regard to claim 37, see comments above.

Regarding claim 38, claim 38 has been amended to limit the ratio to the ratio of the concentrations. It is clear from the context of paragraphs 75 and 67, found on page 18 of Applicants' disclosure, that the intended ratio is a ratio of concentrations.

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Based upon the above amendments, remarks, and papers of records, applicants believe the pending claims of the above-captioned application are in allowable form and patentable over the prior art of record. Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Applicants believe that no extension of time is necessary to make this Reply timely. Should applicants be in error, applicant respectfully requests that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as necessary to make this Reply timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.

Please direct any questions or comments to Kevin M. Able at 607-974-2637.

Respectfully submitted,



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